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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/986,429	11/08/2001	Keiichi Tanaka	0234-0436P	5259

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EXAMINER

JOHNSON, EDWARD M

ART UNIT PAPER NUMBER

1754

DATE MAILED: 08/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/986,429

Applicant(s)

TANAKA ET AL.

Examiner

Edward M. Johnson

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☒ Claim(s) 1,3 and 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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**DETAILED ACTION**

***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Specification***

2. The abstract of the disclosure is objected to because in line 2, "a substances to be treated" appears incorrect. Examiner suggests --a substance to be treated--. Correction is required. See MPEP § 608.01(b).

3. The disclosure is objected to because of the following informalities: Page 8, Example 1, line 1, "(ananase)" appears incorrect. Examiner suggests --anatase--.

Appropriate correction is required.

***Claim Objections***

4. Claims 1, 3, and 4 are objected to because of the following informalities: Claim 1, "a substances" appears incorrect. Examiner suggests --a substance--. Claims 3-4, line 2, "at lease one" appears incorrect. Examiner suggests --at least one--. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3, line 2, "the ion-exchange substance" lacks antecedent basis.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Mouri et al. US 5,690,922.

Regarding claim 1, Mouri '922 discloses titanium oxide photocatalyst (abstract) comprising a silicic acid ion species

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supported on the photocatalyst (see column 11, lines 49-51 and 60-64).

Regarding claim 6, Mouri '922 discloses supporting a silicic acid ion species on a photocatalyst according to an ion-exchange method (see column 11, lines 49-51 and 60-64).

Regarding claim 2, Mouri '922 discloses a silicic acid ion species supported according to an ion-exchange method (see column 11, lines 49-51 and 60-64).

Regarding claim 3, Mouri '922 discloses silicon dioxide (see column 11, line 63).

Regarding claims 4-5, Mouri '922 discloses titanium oxide (abstract).

Regarding claim 7, Mouri '922 discloses mixing copper sulfate and titanium sulfate to form Mixture A, then adding aqueous sodium silicate drop-wise, followed by filtration and drying (see Example 1) and producing a silicic acid ion species supported on the photocatalyst (see column 11, lines 49-51 and 60-64).

9. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Hu et al. US 5,385,753.

Regarding claim 1, Hu '753 discloses a photocatalyst comprising a zeolite, which comprises a metal cation (see column 1, lines 62-68).

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Regarding claim 6, Hu '753 discloses mixing a zeolite, which comprises a metal cation (see column 1, lines 62-68) with titania (see column 2, lines 15-20).

Regarding claims 2-3, Hu '753 discloses silica (see column 2, lines 1-3).

Regarding claims 4-5, Hu '753 discloses titania (see column 2, lines 15-20).

Regarding claim 7, Hu '753 discloses adding the titanium and zeolite in an agitated slurry dropwise (see Example 1) vacuum filtering, and drying overnight (see Example 2).

10. Claims 1-7 are rejected under 35 U.S.C. 102(e) as being anticipated by Ogata et al. US 6,238,631.

Regarding claim 1, Ogata '631 discloses a titanium dioxide photocatalyst securely deposited on fine particles (see column 6 lines 52-57) and wherein silica, alumina or zirconium phosphate may then be added (see column 6, lines 60-65).

Regarding claim 6, Ogata '631 discloses coating titanium dioxide onto fine particles and then adding silica, alumina, or zirconium phosphate (see column 6, lines 47-51 and 60-65).

Regarding claims 2-3, Ogata '631 discloses silica, alumina or zirconium phosphate may then be added (see column 6, lines 60-65).

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Regarding claims 4-5, Ogata '631 discloses titanium dioxide (see column 6, lines 40-42).

Regarding claim 7, Ogata '631 discloses coating by spraying or dipping followed by drying (see column 6, lines 47-51).

**Conclusion**

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kinniard et al. US 6,528,568 discloses a method for making titania photocatalyst comprising dispersing a positively charged acid such as silica onto the surface of the titania (see abstract, Examples, and column 5, lines 46-62).

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward M. Johnson whose telephone number is 703-305-0216. The examiner can normally be reached on M-F 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley S. Silverman can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

EMJ

August 13, 2003

  
STANLEY S. SILVERMAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700